UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/682,059	07/16/2001	Antonio Mugica	38146	1258

			EXAMINER
29569 7590 10/04/2004			TANG, KENNETH

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ART UNIT	PAPER NUMBER
2127	

DATE MAILED: 10/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/682,059	MUGICA ET AL.
	Examiner	Art Unit
	Kenneth Tang	2127

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _16 July 2001_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-24_ is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-24_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All　b)☐ Some *　c)☐ None of:

　　　1.☐ Certified copies of the priority documents have been received.

　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
　　Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-24 are presented for examination.

Claim Objections

The following claims are objected to because of the following informalities:

a.   Claims 1 and 13 - ';' should be replaced with ':' (line 1);

b.   Claims 1 and 13 – "A" should be replaced with 'a' (line 2);

c.   Claims 3 and 15 – "Distributed" should be changed to "distributed" (line 1);

d.   Claims 1, 3, 7, 13, 15, and 19 – "plurlarity" should be changed to "plurality";

e.   Claims 7 and 19 – "andAll" should be changed to "and all" (line 6);

f.   Claims 12 and 24 – a period should be inserted at the end of the sentence.

- Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2.   Claims 1-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention:

a.   In claims 1 and 13, the "four components" and "control units" are indefinite because it is not made explicitly clear in the claim language what these four components and control units are doing.

b.   In claims 3 and 15, "a plurality of interconnected control units" is indefinite because it is not made explicitly clear in the claim language whether or not this is referring to the same "a plurality of interconnected control units" in claim 1 or if a newly introduced set of interconnected control units are being introduced.

c.   In claims 7 and 19, "logical organizational unit" and "logic control units" are indefinite because it is not made explicitly clear in the claim language whether or not these refer to the control units introduced in claim 1 or if a separate additional control unit is being introduced.

d.   In claims 11 and 23, "virtual control unit replacement" is indefinite because it is not made explicitly clear in the claim language whether or not this is part of the control units in claim 1 or if a separate additional control unit is being introduced.

e.   In claims 11 and 23, "another control unit" (lines 3-4) is indefinite because it is not made explicitly clear in the claim language whether or not this is part of the control units in claim 1 or if a separate additional control unit is being introduced.

f.   In claims 11 and 23, "requesting control unit" (line 6) is indefinite because it is not made explicitly clear in the claim language whether or not this is referring to "another control unit" (lines 3-4) or "virtual control unit replacement" or "faulty control unit" or other control unit.

g.   In claims 11 and 23, "reported" (line 3) is indefinite because it is not made explicitly clear in the claim language where it is reported or to who or what it is reported to.

h.   In claim 13, "a TRUE distributed control system" is indefinite because it is not

made explicitly clear in the claim language what the "true" is referring to. It is unclear

what this term is or how it compares with a regular distributed control system.

i.   In claim 13, it is indefinite because it is unclear in the claim language whether this

claim is a system claim or a method claim.

2.   Claims 1-24 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for

omitting essential structural cooperative relationships of elements, such omission amounting to a

gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural

cooperative relationships are:

a.   In claims 1 and 13, there is no structural relationship established between the

"interconnected control units" and the four components.

b.   In claims 11 and 23, there is no structural relationship between the "virtual control

unit replacement" with anything else. There is no description of any virtual or logical

controlling with any of the other components or units.

c.   In claims 12 and 24, there is no structural relationship between the "security"

component with any of the control units or with any of the components.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
patent by another filed in the United States before the invention by the applicant for patent, except that an
international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5-7, 10-15, 17-19, and 22-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Trebes, Jr. (hereinafter Trebes) (US 6,317,438 B1).

1.   As to claim 1, Trebes teaches a control system comprising: Having the following four components; i) distributed logic *(col. 34, lines 29-31)*, ii) fault tolerance *(col. 15, line 45)*, iii) security (encoding and encryption) *(col. 5, lines 42-45)*, and iv) distributed control *(server, Fig. 1 and col. 15, lines 66-67, col. 21, lines 57-58)*; and A plurality of interconnnected control units *(Fig. 1, A, B, C, D, E, F, G)*.

2.   As to claim 2, Trebes teaches said components being mutually exclusive *(col. 44, lines 8-11 and 24-31)*.

3.   As to claim 3, Trebes teaches said Distributed control consisting of a plurality of interconnected control units, each performing specific task or subtasks *(see Abstract and col. 26, line 46)*.

4.   As to claim 5, Trebes teaches said Distributed logic is a set of rules that determine the relations between the control units *(col. 39, lines 60-61)*.

5.   As to claim 6, Trebes teaches each control unit adopts a pending task or subtask that is most suitable for its processing abilities *(col. 17, lines 15-21)*.

6.   As to claim 7, Trebes teaches a logical organizational unit consisting of a logic control

units with the following attributes; Tasks or subtasks may be performed on a plurality of control

units as if on a single control unit; May comprise a single control unit; May comprise of a

plurality of control unit; May enclose other Logical Control Units; A control unit may belong to

a plurality of Logical Control Units; and All control units in a logic control unit have equal

hierarchy *(see Fig. 1, server, PC, A, B, C, D, E, F, G)*.

7.   As to claim 10, Trebes teaches said fault tolerance uses a peer based means for fault

detection *(col. 21, lines 39-43)*.

8.   As to claim 11, Trebes teaches said fault tolerance uses virtual control unit replacement

in which: A faulty control unit is told to suspend operation; The faulty control unit is reported as

faulty to system; Another control unit capable of executing the faulty control units tasks or

subtasks requests to execute them; Said faulty control unit will transfer its current task or subtask

to requesting control unit; and Said requesting control unit will execute the tasks or subtasks *(col.*

21, lines 30-46, col. 7, lines 54-60).

9.   As to claim 12, Trebes teaches said security consisting of having a secure communication

protocols implementing data encryption and controller authentication means *(col. 5, lines 42-45)*.

10.   As to claim 13, it is rejected for the same reasons as stated in the rejection of claim 1.

11.   As to claim 14, it is rejected for the same reasons as stated in the rejection of claim 2.

12.   As to claim 15, it is rejected for the same reasons as stated in the rejection of claim 3.

13.   As to claim 17, it is rejected for the same reasons as stated in the rejection of claim 5.

14.   As to claim 18, it is rejected for the same reasons as stated in the rejection of claim 6.

15.   As to claim 19, it is rejected for the same reasons as stated in the rejection of claim 7.

16.   As to claim 22, it is rejected for the same reasons as stated in the rejection of claim 10.

17.   As to claim 23, it is rejected for the same reasons as stated in the rejection of claim 11.

18.   As to claim 24, it is rejected for the same reasons as stated in the rejection of claim 12.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

19.   Claims 4, 9, 16, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trebes, Jr. (hereinafter Trebes) (US 6,317,438 B1) in view of Works (US 4,412,281).

20.   As to claim 4, Trebes fails to explicitly teach a control system comprising if one of said control units fails to perform a task or subtask that task or subtask is passed to and executed by another control unit. However, Works teaches when one of the signal processor elements (control units) is detected a failure, verify the failure, isolate the faulty element and reassign the task to another spare element (another control unit) *(see Abstract)*. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the feature of if one of said control units fails to perform a task or subtask that task or subtask is passed to and executed by another control unit to the existing system because this increases data integrity by allowing for fault-tolerance and self-repairability *(see Abstract)*.

21.   As to claim 9, Trebes teaches detection of faulty system components *(col. 21, lines 39-40, col. 3, line 64)* but fails to explicitly teach the fault tolerance consisting of two parts: Detection of faulty system components; and The automatic substitution of faulty system components. However, Works teaches when one of the signal processor elements (control units) is detected a failure, verify the failure, isolate the faulty element and reassign (substitute) the task to another spare element (another control unit) *(see Abstract)*. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the feature of the fault tolerance consisting of two parts: Detection of faulty system components; and The automatic

substitution of faulty system components to the existing system because this increases data

integrity by allowing for fault-tolerance and self-repairability *(see Abstract)*.

22.   As to claim 16, it is rejected for the same reasons as stated in the rejection of claim 4.

23.   As to claim 21, it is rejected for the same reasons as stated in the rejection of claim 9.

24.   Claims 8 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Trebes, Jr. (hereinafter Trebes) (US 6,317,438 B1) in view of Yagi et al. (hereinafter Yagi)

(US 5,528,730).

25.   As to claim 8, Trebes fails to explicitly teach a set of dynamic rules that develop

automatically from the operation of said system to determine the relations between the control

units. However, Yagi teaches a control system with automatic and dynamic rule generation. It

would have been obvious to one of ordinary skill in the art at the time the invention was made to

include ethe feature of a set of dynamic rules that develop automatically from the operation of

said system to determine the relations between the control units to the existing system of Trebes

because it increases the flexibility by making it possible to simulate the actual operation while

changes are continuously being made *(col. 2, lines 52-56)*.

26.   As to claim 20, it is rejected for the same reasons as stated in the rejection of claim 8.
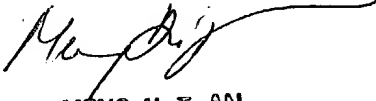
Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kenneth Tang whose telephone number is (571) 272-3772. The

examiner can normally be reached on 8:30AM - 6:00PM, Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

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applications is available through Private PAIR only. For more information about the PAIR

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kt
9/22/04

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